

SEQUENCE LISTING

<110> Yang, Shumin
McCall, Catherine A.
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<120> CANINE AND FELINE IMMUNOREGULATORY PROTEINS, NUCLEIC
ACID MOLECULES, AND USES THEREOF

<130> IM-2-C1-C1

<140> not yet assigned

<141> 2001-01-05

<150> 09/322,409

<151> 1999-05-28

<150> 60/087,306

<151> 1998-05-29

<160> 21

<170> PatentIn Ver. 2.1

<210> 1

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1

atgcacttttc tttgcc

16

<210> 2

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 2

ctggaggaaa akacttcrat gattctgata tctgaaatat at

42

<210> 3
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 Primer

<400> 3
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<210> 4
 <211> 610
 <212> DNA
 <213> Canis familiaris

<220>
 <221> CDS
 <222> (29)..(430)

<400> 4
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 Met Arg Met Leu Leu Asn Leu Ser
 1 5

ttg cta gct ctt ggg gct gcc tat gtt tct gcc ttt gct gta gaa aat 100
 Leu Leu Ala Leu Gly Ala Ala Tyr Val Ser Ala Phe Ala Val Glu Asn
 10 15 20

ccc atg aat aga ctg gtg gca gag acc ttg aca ctg ctc tcc act cat 148
 Pro Met Asn Arg Leu Val Ala Glu Thr Leu Thr Leu Leu Ser Thr His
 25 30 35 40

cga act tgg ctg ata ggc gat ggg aac ctg atg att cct act cct gaa 196
 Arg Thr Trp Leu Ile Gly Asp Gly Asn Leu Met Ile Pro Thr Pro Glu
 45 50 55

aat aaa aat cac caa ctg tgc att aaa gaa gtt ttt cag ggt ata gac 244
 Asn Lys Asn His Gln Leu Cys Ile Lys Glu Val Phe Gln Gly Ile Asp
 60 65 70

aca ttg aag aac caa act gcc cac ggg gag gct gtg gat aaa cta ttc 292
 Thr Leu Lys Asn Gln Thr Ala His Gly Glu Ala Val Asp Lys Leu Phe
 75 80 85

caa aac ttg tct tta ata aaa gaa cac ata gag cgc caa aaa aaa agg 340
 Gln Asn Leu Ser Leu Ile Lys Glu His Ile Glu Arg Gln Lys Lys Arg
 90 95 100

tgt gca gga gaa aga tgg aga gtg aca aag ttc cta gac tac ctg caa 388
 Cys Ala Gly Glu Arg Trp Arg Val Thr Lys Phe Leu Asp Tyr Leu Gln
 105 110 115 120

gta ttt ctt ggt gta ata aac acc gag tgg aca ccg gaa agt 430
 Val Phe Leu Gly Val Ile Asn Thr Glu Trp Thr Pro Glu Ser
 125 130

tgagaacaaa ccggcttatt gtagtggaag attttggaga agaattggttt tttggcgatg 490

agaatgaggg ccaaccaaca gtagggactt aatggccagt ataactaagc ttcagagaca 550

aagtaaatat ttcaggcatc ctactacttt atcacttcac acagatgaaa tatatttgag 610

<210> 5

<211> 134

<212> PRT

<213> Canis familiaris

<400> 5

Met Arg Met Leu Leu Asn Leu Ser Leu Leu Ala Leu Gly Ala Ala Tyr
 1 5 10 15

Val Ser Ala Phe Ala Val Glu Asn Pro Met Asn Arg Leu Val Ala Glu
 20 25 30

Thr Leu Thr Leu Leu Ser Thr His Arg Thr Trp Leu Ile Gly Asp Gly
 35 40 45

Asn Leu Met Ile Pro Thr Pro Glu Asn Lys Asn His Gln Leu Cys Ile
 50 55 60

Lys Glu Val Phe Gln Gly Ile Asp Thr Leu Lys Asn Gln Thr Ala His
 65 70 75 80

Gly Glu Ala Val Asp Lys Leu Phe Gln Asn Leu Ser Leu Ile Lys Glu
 85 90 95

His Ile Glu Arg Gln Lys Lys Arg Cys Ala Gly Glu Arg Trp Arg Val
 100 105 110

Thr Lys Phe Leu Asp Tyr Leu Gln Val Phe Leu Gly Val Ile Asn Thr

115

120

125

Glu Trp Thr Pro Glu Ser
130

<210> 6

<211> 610

<212> DNA

<213> Canis familiaris

<400> 6

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catcgccaaa aaaccattct tctccaaaat cttccactac aataagccgg tttgttctca 180
actttccggg gtccactcgg tgtttattac accaagaaat acttgaggt agtctaggaa 240
ctttgtcact ctccatcttt ctccgcaca ctttttttt tggcgctcta tgtgttcttt 300
tattaaagac aagttttgga atagtttatc cacagcctcc cgtgggcag tttggttctt 360
caatgtgtct ataccctgaa aaacttcttt aatgcacagt tgggtgatttt tattttcagg 420
agtaggaatc atcaggttcc catcgctat cagccaagtt cgatgagtgg agagcagtgt 480
caaggtctct gccaccagtc tttcatggg attttctaca gcaaaggcag aaacataggc 540
agccccaaga gctagcaaac tcaaattcag aagcattctc atagctctga aatgttcagt 600
gtttgccttg                                     610

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<210> 7

<211> 402

<212> DNA

<213> Canis familiaris

<400> 7

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atgagaatgc ttctgaattt gagtttgcta gctcttgggg ctgcctatgt ttctgccttt 60
gctgtagaaa atcccatgaa tagactggtg gcagagacct tgacactgct ctccactcat 120
cgaacttggc tgataggcga tgggaacctg atgattccta ctctgaaaa taaaaatcac 180
caactgtgca ttaaagaagt ttttcagggt atagacacat tgaagaacca aactgcccac 240
ggggaggctg tggataaaact attccaaaac ttgtctttaa taaaagaaca catagagcgc 300
caaaaaaaaaa ggtgtgcagg agaaagatgg agagtgacaa agttcctaga ctacctgcaa 360
gtattttcttg gtgtaataaa caccgagtgg acaccggaaa gt                                     402

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<210> 8

<211> 402

<212> DNA

<213> Canis familiaris

<400> 8

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actttccggg gtccactcgg tgtttattac accaagaaat acttgaggt agtctaggaa 60

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tattaaagac aagtttttga atagttttatc cacagcctcc ccgtgggcag tttggttctt 180
caatgtgtct ataccctgaa aaacttcttt aatgcacagt tggtgatttt tattttcagg 240
agtaggaatc atcaggttcc catcgcttat cagccaagtt cgatgagtgg agagcagtgt 300
caaggtctct gccaccagtc tattcatggg attttctaca gcaaaggcag aaacataggc 360
agccccaaga gctagcaaac tcaaattcag aagcattctc at 402

```

<210> 9

<211> 345

<212> DNA

<213> Canis familiaris

<220>

<221> CDS

<222> (1)..(345)

<400> 9

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ttt gct gta gaa aat ccc atg aat aga ctg gtg gca gag acc ttg aca 48
Phe Ala Val Glu Asn Pro Met Asn Arg Leu Val Ala Glu Thr Leu Thr
1 5 10 15

```

```

ctg ctc tcc act cat cga act tgg ctg ata ggc gat ggg aac ctg atg 96
Leu Leu Ser Thr His Arg Thr Trp Leu Ile Gly Asp Gly Asn Leu Met
20 25 30

```

```

att cct act cct gaa aat aaa aat cac caa ctg tgc att aaa gaa gtt 144
Ile Pro Thr Pro Glu Asn Lys Asn His Gln Leu Cys Ile Lys Glu Val
35 40 45

```

```

ttt cag ggt ata gac aca ttg aag aac caa act gcc cac ggg gag gct 192
Phe Gln Gly Ile Asp Thr Leu Lys Asn Gln Thr Ala His Gly Glu Ala
50 55 60

```

```

gtg gat aaa cta ttc caa aac ttg tct tta ata aaa gaa cac ata gag 240
Val Asp Lys Leu Phe Gln Asn Leu Ser Leu Ile Lys Glu His Ile Glu
65 70 75 80

```

```

cgc caa aaa aaa agg tgt gca gga gaa aga tgg aga gtg aca aag ttc 288
Arg Gln Lys Lys Arg Cys Ala Gly Glu Arg Trp Arg Val Thr Lys Phe
85 90 95

```

```

cta gac tac ctg caa gta ttt ctt ggt gta ata aac acc gag tgg aca 336
Leu Asp Tyr Leu Gln Val Phe Leu Gly Val Ile Asn Thr Glu Trp Thr
100 105 110

```

```

ccg gaa agt 345
Pro Glu Ser

```

115

<210> 10

<211> 115

<212> PRT

<213> Canis familiaris

<400> 10

Phe Ala Val Glu Asn Pro Met Asn Arg Leu Val Ala Glu Thr Leu Thr
1 5 10 15

Leu Leu Ser Thr His Arg Thr Trp Leu Ile Gly Asp Gly Asn Leu Met
20 25 30

Ile Pro Thr Pro Glu Asn Lys Asn His Gln Leu Cys Ile Lys Glu Val
35 40 45

Phe Gln Gly Ile Asp Thr Leu Lys Asn Gln Thr Ala His Gly Glu Ala
50 55 60

Val Asp Lys Leu Phe Gln Asn Leu Ser Leu Ile Lys Glu His Ile Glu
65 70 75 80

Arg Gln Lys Lys Arg Cys Ala Gly Glu Arg Trp Arg Val Thr Lys Phe
85 90 95

Leu Asp Tyr Leu Gln Val Phe Leu Gly Val Ile Asn Thr Glu Trp Thr
100 105 110

Pro Glu Ser
115

<210> 11

<211> 345

<212> DNA

<213> Canis familiaris

<400> 11

actttccggt gtccactcgg tgtttattac accaagaaat acttgcaggt agtctaggaa 60
ctttgtcact ctccatcttt ctctgcaca cttttttttt tggcgctcta tgtgttcttt 120
tattaaagac aagttttgga atagtttata cacagcctcc ccgtgggcag tttggttctt 180
caatgtgtct ataccctgaa aaacttcttt aatgcacagt tgggtgatttt tattttcagg 240
agtaggaatc atcaggttcc catcgctat cagccaagtt cgatgagtgg agagcagtgt 300
caaggtctct gccaccagtc tattcatggg attttctaca gcaaa 345

<210> 12
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 12
gggctcgaga aaagatttgc tgtagaaaat cccatg 36

<210> 13
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 13
cccgcggccg ctcaactttc cgggtgtccac tc 32

<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 14
aggcaaacac tgaacatttc 20

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 15
tctccaaaat cttccactac

20

<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 16
tcaagggagg ctataaatc

20

<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 17
ttatagtcaa gggcatatcc

20

<210> 18
<211> 1658
<212> DNA
<213> Canis familiaris

<220>
<221> intron
<222> (171)..(373)

<220>
<221> intron
<222> (407)..(1275)

<220>
<221> intron
<222> (1405)..(1522)

<400> 18

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agaccttgac actgctctcc actcatcgaa cttggctgat aggcgatggg gtaattttct 180
ttttgattcc tacagtcttt aaaatgcatg ggtaattggg ggtgggtggc agtttttaaa 240
gatccattat caataatgaa gtaatgagtg ttaataatat ataatgggta accatgttac 300
tcagaagaat tatattaaaa gttatgaacc ttacaatata ttaaaaatga atgttggttc 360
ctttcttttt cagaacctga tgattcctac tcctgaaaat aaaaatgtaa gttaaattat 420
gatttgataa aatgattaca tgaatcagtt tcatatttta agctataaag tatcagttaa 480
cattgggatg atttaatttt atctattttg tttttatgtg tgcggatgta aattatgtgc 540
ttatgaatat taggaatggg gtttaggaatg gctctacaat attaagtaga atccattaag 600
caagtggatc aggccttttt ttgatgttgt cagttctcca tctcaaagag cctcgtgtca 660
ggcattcttt ccaaaagaat tccatattgg gtcagagata cttcctaggc tccattcacc 720
tctgtcgttg gctttcctca cctcaacgtt tttctgaaag tactagcaac ttgggggttat 780
attttttagaa ttatggtcag tagacatgaa aatatacagt gaagtcctat attaatagtc 840
acttccacat atttaaatga tttttaactc taatggaatc atatacatct ggagtatgtc 900
atggtcatat taaaatgtta aaaatgtgat atcattagtc taaatagaat aaaattacca 960
gctagaacta tacgaggaaa ttctgagggtg aggtaaatca gtaaggcagt tgtattatac 1020
ctcgtaaagca tttatttttc attaatcatt tcatatttat catttgtaac acttctcagt 1080
aattatataa acatcattta cttatggtaa ttatagctta gtataagggtg gtttcccacc 1140
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aaagtctaac tttttggacc aaatttttat gccttgtttt gatgaattat attttttaaa 1260
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aagaaccaa ctgcccacgg ggaggctgtg gataaactat tccaaaactt gtctttaata 1380
aaagaacaca tagagcgcca aaaagtaagt taaagacatt tggcaaaaac ttaagtatat 1440
ttgtctgact ctgcctgttt tttttttttt tttttacaag aattgacagt ttcctacaat 1500
atctcctctg ttcttttaac agaaaagggtg tgcaggagaa agatggagag tgacaaagtt 1560
cctagactac ctgcaagtat ttcttggtgt aataaacacc gagtggacac cggaaagttg 1620
agaacaaacc ggcttattgt agtggaagat tttggaga 1658
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<210> 19

<211> 1658

<212> DNA

<213> *Canis familiaris*

<400> 19

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tctccaaaat cttccactac aataagccgg tttgttctca actttccggt gtccactcgg 60
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ctcctgcaca ccttttctgt taaaagaaca gaggagatat tgtaggaaac tgtcaattct 180
tgtaaaaaaa aaaaaaaaaa acaggcagag tcagacaaat atacttaagt ttttgccaaa 240
tgtctttaac ttactttttg gcgctctatg tgttctttta ttaaagacaa gttttggaat 300
agtttatcca cagcctcccc gtgggcagtt tggttcttca atgtgtctat accctgaaaa 360
acttctttaa tgcacagttg gtgctaaatg aggaagattt taaaaaatat aattcatcaa 420
aacaaggcat aaaaatttgg tccaaaagt agactttgtt ttgtggggtt tacacaagtt 480
cccttctccc aagaggtttt tacttggtgc ttttccgggt gggaaaccac cttatactaa 540
gctataatta ccataagtaa atgatgttta tataattact gagaagtgtt acaaatgata 600
taaatgaaat gattaatgaa aaataaatgc ttacgaggta taatacaact gccttactga 660
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tttacctcac ctcagaatTT cctcgtatag ttctagctgg taattttatt ctatttagac 720
taatgatatc acatttttaa cattttaata tgaccatgac atactccaga tgtatatgat 780
tccattagag ttaaaaatca tttaaatatg tggaagtgac tattaatata ggacttcact 840
gtatatTTTt atgtctactg accataattc taaaaatata accccaagtt gctagtactt 900
tcagaaaaac gttgaggtga ggaaagccaa cgacagaggt gaatggagcc taggaagtat 960
ctctgaccca atatggaatt ctttttgaaa gaatgcctga cacgaggctc tttgagatgg 1020
agaactgaca acatcaaaaa agggcctgat ccacttgctt aatggattct acttaatat 1080
gtagagccat tcctaacacc attcctaata ttcataagca cataatttac atccgcacac 1140
ataaaaacaa aatagataaa attaaatcat cccaatgtta actgatactt tatagcttaa 1200
aatatgaaac tgattcatgt aatcatttta tcaaatacata atttaactta catttttatt 1260
ttcaggagta ggaatcatca ggttctgaaa aagaaaggaa acaacattca tttttaatgt 1320
attgtaaggt tcataacttt taatataatt cttctgagta acatgggttac ccatTTtat 1380
attattaaca ctcattactt cattattgat aatggatctt taaaaactag ccaccaccac 1440
caattacca tgcattttta agactgtagg aatcaaaaag aaaattacc catcgctat 1500
cagccaagtt cgatgagtg agagcagtg caaggtctct gccaccagtc tattcatggg 1560
atTTtctaca gcaaaggcag aaacataggc agcccaaga gctagcaaac tcaaattcag 1620
aagcattgtc atagctctga aatgttcagt gtttgcct 1658

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<210> 20

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: N-terminal
peptide

<400> 20

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Phe Ala Val Glu Asn Pro Met Asn Arg Leu Val Ala Glu Thr Leu
  1             5             10             15

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<210> 21

<211> 671

<212> DNA

<213> Canis familiaris

<400> 21

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aggcaaacac tgaacatttc agagctatga gaatgcttct gaatttgagt ttgctagctc 60
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agaccttgac actgctctcc actcatcgaa cttggctgat aggcgatggg gtaattttct 180
ttttgattcc tacagtcttt aaaatgcatg ggtaattggg ggtgggtggc agtttttaaa 240
gatccattat caataatgaa gtaatgagtg ttaataatat ataatgggta accatgttac 300
tcagaagaat tatattaaaa gttatgaacc ttacaataca ttaaaaatga atgttgtttc 360
ctttcttttt cagaacctga tgattcctac tcctgaaaat aaaaatcacc aactgtgcat 420
taaagaagtt tttcagggtg tagacacatt gaagaaccaa actgccacg gggaggctgt 480
ggataaacta ttccaaaact tgtctttaat aaaagaacac atagagcgcc aaaaaaaaaa 540

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gtgtgcagga gaaagatgga gagtgacaaa gttcctagac tacctgcaag tatttcttgg 600
tgtaataaac accgagtgga caccggaaag ttgagaacaa accggcttat tgtagtggaa 660
gattttggag a 671